

Claims

What is claimed is:

1. A method for operating a mower, the method comprising
defining a reference axis of rotation at a desired point along a path segment of the mower;
orienting the wheels generally tangentially to a circular region about the reference axis of rotation; and
applying rotational mechanical energy to one or more of the wheels to rotate the mower by a desired angular amount about the reference axis.
2. The method according to claim 1 further comprising:
stopping the application of rotational energy to achieve rotation by the desired angular amount; and
reorienting the wheels of the mower toward a next direction of travel in accordance with a next desired path segment.
3. The method according to claim 1 wherein the desired point represents a position where the mower is capable of servicing the work area without the mower or one or more of its cutting blades extending beyond the work area at all or by more than an allowable tolerance.
4. The method according to claim 1 wherein the applying rotational mechanical energy comprises rotating the mower to orient a critical point to face toward a concave boundary to be trimmed.
5. The method according to claim 1 wherein the applying rotational mechanical energy comprises rotating the mower to orient a critical point to face toward a convex boundary to be trimmed.
6. The method according to claim 1 further comprising:

coasting the mower in a linear mode while applying the rotational mechanical energy to one or more wheels.

7. The method according to claim 1 further comprising:

pausing movement of the mower in a linear mode while applying the rotational mechanical energy to one or more wheels.

8. The method according to claim 1 further comprising:

coasting the mower in an arc mode while applying the rotational mechanical energy to one or more wheels.

9. The method according to claim 1 further comprising:

pausing movement of the mower in an arc mode while applying the rotational mechanical energy to one or more wheels.

10. A method of executing a path plan, the method comprising:

moving along a first row of a path plan in a first direction.

defining an end point of the first row as a first axis of rotation;

rotating the mower by approximately ninety degrees with respect to the first axis of rotation;

moving along a transverse section that is substantially orthogonal to the first row;

defining an end point of the transverse section as a second axis of rotation;

rotating the mower by approximately ninety degrees with respect to the second axis of rotation; and

moving the mower along a second generally linear row in a generally opposite direction with respect to the first direction.

11. The method according to claim 10 wherein the rotating with respect to at least one of the first axis of rotation and the second axis of rotation comprises the following steps:

defining a reference axis of rotation, as at least one of the first axis of rotation and the second axis of rotation, at a desired point along a path segment of the mower;

orienting the wheels generally tangentially to a circular region about the reference axis of rotation; and

applying rotational mechanical energy to one or more of the wheels to rotate the mower by a desired angular amount.

12. The method according to claim 11 further comprising:

stopping the application of rotational energy to achieve rotation by the desired angular amount; and

reorienting the wheels of the mower toward a next direction of a next desired path segment.

13. The method according to claim 10 wherein the desired point represents a position where the mower is capable of servicing the work area without the mower or one or more of its cutting blades extending beyond the work area at all or by more than an allowable tolerance.

14. The method according to claim 10 wherein the first row and the second row comprise generally linear rows.

15. The method according to claim 10 further comprising selecting an end point of the first row such that an outer cutting edge of a cutting blade of the mower is generally coextensive with a boundary or perimeter of the work area.

16. The method according to claim 10 further comprising selecting a length of the transverse section to provide a proper generally parallel spacing between the first row and the second row, in which the swath or cut width of the mower is permitted to overlap.

17. The method according to claim 10 wherein a centerline of each row is generally spaced apart by less than one-half of the swath or cut width of the mower to minimize overlap and reduce energy consumption of the mower.

18. A method of executing a path plan, the method comprising:
moving along a first row of a path plan in a first direction;
defining an end point of the first row;
rotating a steered direction of wheels of the mower with respect to a steered axis by approximately ninety degrees when the mower is at or near the end point;
moving along a transverse section that is substantially orthogonal to the first row;
defining an end point of the transverse section;
rotating a steered direction of wheels of the mower by approximately ninety degrees when the mower is at or near the end point; and
moving the mower along a second generally linear row in a generally opposite direction with respect to the first direction.